

Homing Behavior in Stinkpot turtles (*Sternotherus odoratus*)

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Introduction

Do turtles exhibit homing behavior? What factors influence successful homing behavior? For nine weeks, I monitored stinkpot turtle movements in Lake Matoaka to determine 1) whether turtles exhibit home site fidelity, and 2) the relative extent to which distance and water depth influence homing behavior.

Method



During summer 2002, I set up three turtle trapping sites along the shore of Lake Matoaka (Figure 1). Two sites were on the eastern lake shore and separated by substantial distance (500 m), and the third site was on the western shore, separated from the other sites by deep water (4m). Every day during the summer my assistants and I checked each trap for stinkpots and marked the ones we caught with a binary code. This code was used to track the movements of individual turtles between traps.



Figure 1. Map of Lake Matoaka showing three trapping sites separated by distance and/or depth.



During the first three weeks of the study, the captured turtles were displaced to the other two sites as part of a rotation pattern, to move turtles away from their original point of capture. For the remaining six weeks, turtles were simply released at their capture site. In this way, I was able to determine the homing of displaced turtles relative to other non-homing movements.

Results



- * 316 captures total
- * 197 different stinkpot turtles
- * 90 new stinkpots labeled during study
- * 25 individual stinkpots recaptured at least once back at original capture site after being displaced
- * 43 stinkpots captured twice
- * 12 captured three times
- * 13 captured more than three times (max of 6 times)
- * 9.55 (~10) days between displacement and recapture at home site



* 14 “A” homing movements

* 13 “B” homing movements

* 12 “C” homing movements

Homing Behavior--Response to Displacement

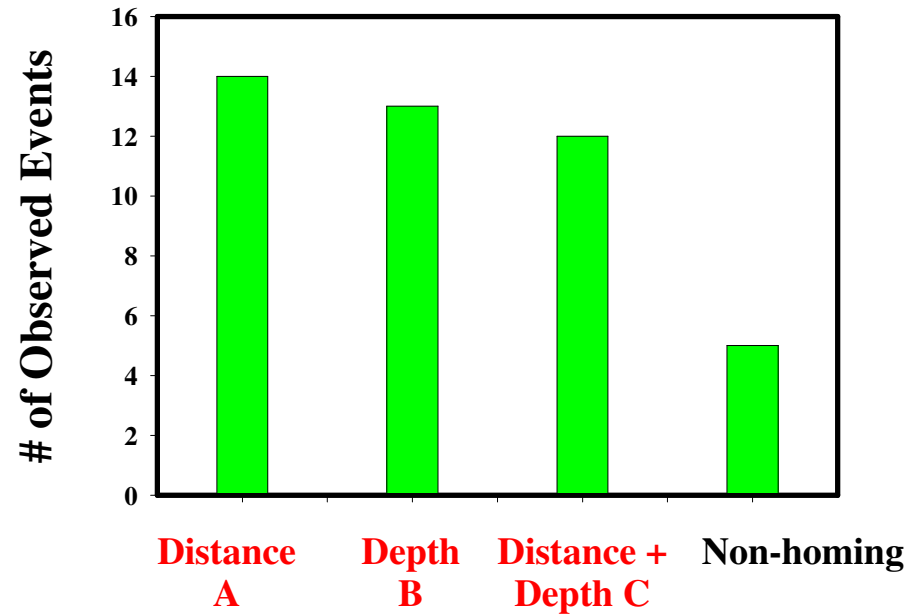


Figure 2. I found no difference in the number of homing movements among the three sites. A turtle was shown to be just as likely to travel over a great distance as across deep water after being displaced. However, the stinkpots were significantly more likely (Chi-square test) to move to their original site of capture after displacement.

Discussion

Based on the almost equal number of movements between the three sites (Figure 2), neither distance, deep water, nor a combination of both deterred turtle movement differently. The fact that these movements occurred significantly more often in response to displacement relative to non-displaced turtles attests to the stinkpots' homing abilities. While 27 of the 178 displaced turtles were recaptured at their original capture site post-displacement, only three of the 138 non-displaced turtles were recorded moving to any site at all. This information indicates that homing behavior was responsible for the majority of turtle movements documented by this study.

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